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Surprises after laparoscopic cholecystectomy: Incidentally detected gallbladder malignancies

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Abstract

Aim: Accidental gallbladder cancers have started to increase all over the world with the spread of laparoscopic cholecystectomy. The aim of this study is to evaluate gallbladder malignancies in patients who were not diagnosed with preoperative malignancies undergoing laparoscopic cholecystectomy for benign reasons in our clinic, accompanied by literature.

Material and Methods: Cases of laparoscopic cholecystectomy performed in our clinic between 2010 and 2019 with the preliminary diagnosis of gallstones, chronic cholecystitis, delayed acute cholecystitis or benign gallbladder polyps were retrospectively reviewed. Demographic data such as age, gender and comorbidities of the patients were recorded. Patients with preoperative gallbladder or liver malignancy were excluded from the study.

Results: Incidental gallbladder malignancy was detected in 11 of 5100 cases in the histopathological examination of cholecystectomy material. Nine cases were recalled and reoperated, and then transferred to oncology for chemotherapy. Two cases were followed nonoperatively.

Discussion: Cholecystectomy operation is one of the most performed surgeries in a number of general surgery clinics and is mostly performed for benign reasons. For this reason, the process of following up and evaluating the histopathology results after the operation can be neglected. Today, with the widespread use of laparoscopic cholecystectomy, incidental gallbladder malignancies have increased. For this reason, pathology outcome follow-up after cholecystectomy or laparoscopic cholecystectomy operation is important.

Keywords

Gallbladder, Cholelithiasis, Adenocarcinoma

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Introduction

Gallbladder cancers are malignancies with a high mortality rate. The estimated 5-year survival rate is 5-10%. Despite advances in diagnosis and treatment possibilities, surgery is still the only curative treatment option [1].

Despite the widespread use of radiological examinations such as Ultrasound and Computed Tomography, 50-70% of gallbladder cancers are diagnosed during laparoscopic cholecystectomy performed for benign reasons or in pathology reports received after cholecystectomy. Only about 30% of them are able to get a diagnosis before surgery [2-4]. These cases are called unsuspected or incidental gallbladder carcinomas.

Accidental gallbladder carcinomas are detected in 0.3-2% of all cholecystectomies and are usually at an advanced stage [5,6]. Chemotherapy, radiotherapy or chemoradiotherapy do not significantly affect survival in these patients. Complete resection is considered as the only curative treatment option. However, even in cases diagnosed at an early stage and undergoing R0 resection, 5-year survival does not exceed 10% in incidental gallbladder carcinomas [7].

Computed Tomography (CT) and Magnetic Resonance Imaging (MRI) are used for restaging incidental gallbladder carcinomas after cholecystectomy. R0 re-resection is the gold standard treatment for tumors up to pT2. This procedure can be performed as a non-anatomical wedge resection of the gallbladder bed, or as an anatomical resection of liver segments 4b and 5 [1,7,8].

In this study, we aimed to evaluate, accompanied by the literature, the gallbladder malignancies we encountered in patients who underwent laparoscopic cholecystectomy for benign reasons in our clinic and no preoperative malignancy was detected.

Material and Methods

This study was approved by Necmettin Erbakan University Meram Medical Faculty ethics committee (Date:03.11.2023, No:2023/4605). We retrospectively analyzed 5100 cases diagnosed with gallstones, chronic cholecystitis, delayed acute cholecystitis or benign gallbladder polyps at our general surgery clinic between 2010 and 2019. Demographic data such as age, gender and comorbidities of the patients were recorded. Incidental gallbladder carcinoma was detected in 11 (0.22%) patients.

Cases with a preoperative diagnosis of malignancy, cases with mass image and wall irregularity findings that may cause suspicion of malignancy in radiological examinations, cases with intraoperative gallbladder mass or gallbladder irregularity, and cases with a macroscopic mass lesion in the examination performed on the operating table after removal of the specimen were excluded from the study.

Results

A total of 11 patients were diagnosed with coincidental gallbladder cancer. Seven of our patients were female and 4 were male. The mean age was 66.6 years (60-82). Five patients were referred to surgery with the diagnosis of acute cholecystitis, 1 patient with Mirizzi syndrome and 5 patients with cholelithiasis. Preoperative abdominal USG was performed in all patients. In addition to USG, MRCP and abdominal CT examination were performed in 4 patients, and ERCP was performed in one patient. All patients had cholelithiasis. Intraoperative gallbladder perforation was observed in 4 patients. It was observed that the gallbladder was not removed from the abdomen with an endobag in any case. As a result of histopathological examination, the presence of tumor at microscopic level in 10 patients and at macroscopic level in 1 patient was reported. Pathologically, it was reported that the surgical margin was negative in all patients. Nine of our patients were re-operated after the pathology results. Surgical necessity and treatment procedures were explained to our 2 patients who were not operated. Due to the general condition of the patient, non-operative follow-up was deemed appropriate in line with the opinions and preferences of the patients after the briefing. Liver wedge resection was performed in 5 of 9 patients who

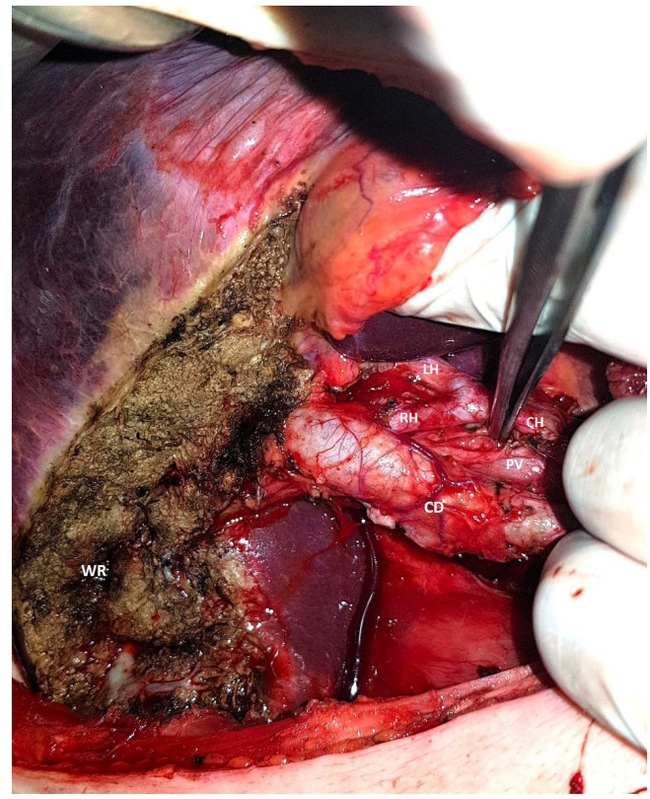

Figure 1. WR: Wedge rezsection area, CH: Common hepatic artery, RH: Right hepatic artery, LH: Left hepatic artery, PV: Portal vein, CD: Choledocho duct

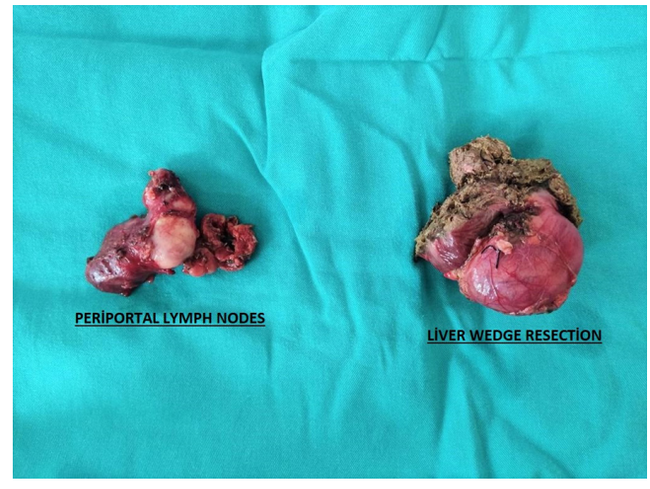

Figure 2. Resection material

underwent surgery. The pathology of the resection material was reported as normal. Surgical margins were clean and no metastases were observed. Liver wedge resection, lymph node dissection and trocar port excision were performed in 2 of our patients. Metastasis was not detected in the liver in these 2 patients. It was reported that there was no metastasis at the trocar port site. Of the lymph nodes, 4/16 metastases were reported in one patient and 8/12 metastases in the other. Liver wedge resection and trocar port excision were performed in one of our patients. Metastasis was not detected in the liver in this patient, either. Adenocarcinoma infiltration was seen in the trocar port. Liver wedge resection and lymph node dissection were performed in one of our patients. No metastases were detected in the liver. The lymph node was reported as 3/10 metastases. Following surgical procedures, 7 of our patients received chemotherapy and 2 of our patients received chemoradiotherapy. Only 3 of our 11 patients are still alive and have completed the 8th, 17th and 18th months after the operation. Eight of our patients died, and the average survival time was 10.5 months.

In 2 of our patients, aged 82 and 71, the tumor was detected microscopically in the fundus of the gallbladder. It was staged as T2 pathologically. No lymphovascular invasion was observed, there was no perineural invasion. A non-operative follow-up decision was taken considering the interviews with the patients with negative surgical margins and the general condition of the patients. Chemotherapy was applied to one of the patients. Our patient who received chemotherapy had a survival of 18 months.

One of our patients was a 62-year-old female patient. Radiologically, abdominal USG and abdominal CT examinations were performed, as well as MRCP and ERCP examinations for the patient. Perforation did not develop in the laparoscopic cholecystectomy performed on the patient who was diagnosed with Mirizzi syndrome with 1 cm calculus in the gallbladder with all these examinations. In the case whose gallbladder was taken out of the abdomen without using an endobag, a 2x2 cm macroscopic tumor was detected by the pathology. The tumor was observed in the fundus of the gallbladder. Lymphovascular invasion or perineural invasion was not detected in the patient with T2 pathological stage. In addition, liver wedge resection and lymph node dissection procedures were applied to the patient (Figures 1, 2). In addition, chemotherapy and radiotherapy were applied to the patient who was found to have metastasis in 3 of the 10 removed lymph nodes. The patient, who also had perimuscular invasion, died 8 months after the first operation.

Liver wedge resection and trocar site excision were performed in our 67-year-old male patient. The patient, who was diagnosed with cholelithiasis by abdominal USG, had a 1 cm calculus in the gallbladder. The use of a bag was not considered necessary in the patient who did not develop gallbladder perforation during the surgery. The tumor was microscopic and located in the fundus. Before the operation, there was palpable stiffness at the wound site in the subxiphoid area. The patient was re-operated and liver wedge resection and trocar port excision were performed. While no metastasis was detected in the liver, adenocarcinoma infiltration was observed at the trocar site. Following chemotherapy, the patient died 12 months after his first surgery.

Liver wedge resection, lymph node excision, and trocar site excision were performed in 2 patients. No metastases were observed in the trocar sites. Lymph nodes were reported as 4/16 and 7/12 metastases. While no liver pathology was observed in 1 patient, liver metastasis was detected in one patient and the surgical margin was evaluated as negative.

Discussion

Different results were obtained in various studies when incidental gallbladder carcinomas were compared with patients who underwent surgical resection after preoperative diagnosis. However, it was observed that residual tissue remained in the abdomen in the second surgery of the majority of patients with incidental gallbladder carcinoma [9-10]. In our study, malignant tissues were observed in the resection material performed in 4 of our patients. Effective use of imaging studies before re-resection is important. FDG PET-CT is one of the most important tests that can help us in this area [11].

In the study by Ando et al., 36 patients were operated and residual tissue was detected in 16 patients. Although residual tissue was completely resected in 12 of these 16 patients, R0 resection could not be achieved in 4 patients [10]. In the study by Pawlik et al., it was observed that 70 of 115 patients had residual disease [12].

When the literature is examined, the incidence of incidental gallbladder carcinomas varies between 0.4% and 1.6%. In our study, the rate was found to be 0.22%. In addition, peroperatively removed gallbladders are examined in detail on the operating table and frozen examination is performed in suspected cases [10,12,13].

Gallbladder cancers, which are more common in women, are mostly detected in older patients. Considering these values, the gender and age parameters in our study are compatible with the literature [12,13].

When tumor staging was evaluated, 72% of the patients in our study were T1, while 28% were T2. In the study by Shukla et al., the rate of T1 tumors was 25%, and the rate of T2 and T3 tumors was 75%. In another study, Pawlik et al. reported that the T1 tumor rate was 8%, the T2 rate was 92%, and the T3 rate was 92%. When the literature is scanned, it is seen that T2 tumors are detected more than T1 tumors, although there is no clear consensus in this area [12,13].

The average number of lymph nodes removed in lymph node dissection performed in patients who underwent second surgery after cholecystectomy was 4 in our study. It is seen that this ratio is 6 and 3 in the other 2 studies examined. It is thought that the current situation is caused by the difference in the number of lymph node dissections performed in the patients and the tumor stages.

When surgical resection techniques are compared in incidental gallbladder malignancies, there are publications indicating that standard hepatectomy (right hepatectomy or extended hepatectomy) does not increase survival compared to wedge resection (segments 4b and 5), and even increases postoperative morbidity and mortality [14].

Conclusion

In conclusion, laparoscopic cholecystectomy is the most

commonly performed operation all over the world. Preoperative radiological examinations performed by an experienced radiologist should guide the surgery. In suspected peroperative cases, frozen section should be studied and if necessary, additional surgery should be performed in the same session. The use of an endobag while removing the gallbladder from the abdomen is the most effective method to prevent trocar site metastases. Considering the incidental gallbladder malignancies, pathology reports should be followed and the results should be evaluated.

Limitations

In none of the cases included in our study, endobag was not used while removing the gallbladder from the abdomen. New studies are needed to examine the effect of endobag use on recurrence or local invasion.

Although the number of cases is high, our study is a single-center study. Multicenter studies will be more enlightening on the subject.

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Scientific Responsibility Statement

The authors declare that they are responsible for the article's scientific content including study design, data collection, analysis and interpretation, writing, some of the main line, or all of the preparation and scientific review of the contents and approval of the final version of the article.

Animal and Human Rights Statement

All procedures performed in this study were in accordance with the ethical standards of the institutional and/or national research committee and with the 1964 Helsinki Declaration and its later amendments or compareable ethical standards.

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Conflict of Interest

The authors declare that there is no conflict of interest.

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